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SECOND-CROP RICE PRODUCTION IN TEXAS

An intensive study of the factors which influence "second-crop" rice production in Texas was initiated at the Rice-Pasture Experiment Station at Beaumont in 1956. Second-crop rice is obtained from new growth regenerated from the stubble after the first harvest.

Rice varieties grown in Texas are classified according to the time required for them to reach maturity. The seeding date greatly influences the growth period of all varieties produced in Texas. The number of days from seeding to harvest for early-maturity varieties usually ranges from 109 to 132 days; for midseason types, 132 to 150 days; and for late-season varieties, 150 to 180 days. Belle Patna is a new, very early-maturing, long-grain rice that requires 96 to 117 days from seeding to maturity.

According to the Texas Agricultural Experiment Station, the shortness of the growing season is the major limiting factor in the successful production of second-crop rice in the State. Although the frost-free period for most of the Texas Gulf Coast Prairie averages about 270 days, the effective growing period for rice frequently is limited to April 15 through October 15, or approximately 180 days. Temperatures below 50° Fahrenheit seldom occur during this time.

Early-maturing rice varieties generally do not produce a successful second crop unless the effective growing period exceeds 180 days. Recently developed, very early-maturing varieties will produce consistent and reliable second-crop yields if recommended procedures are followed carefully, says the Texas Agricultural Experiment Station.

The reproductive stage of rice usually requires about 60 days; very early varieties, such as Belle Patna, have only about 40 days (from seeding date) for vegetative development. Nutrient uptake is greatest during this period. Any delay or irregularity in germination or early vegetative development may have an adverse effect on grain yield and milling quality.

Level land, properly spaced levees, and uniform depths of irrigation water applied at the proper time are necessary for rapid and even vegetative development. Weeds and grass must be controlled without significant interference with the normal growth and development of rice. The lack of effective weed control in the first rice crop may materially reduce second-crop yields.

The length of time from seeding to maturity of first-crop rice is related to the seeding date. The earlier the rice is sown, the more time is required for the crop to reach maturity, because growth is slowed by the low temperatures and the relatively short periods of daylight in early spring. Air and soil temperatures usually are high enough by April 15 to insure seedling emergence within 3 to 7 days. In general, harvesttime is shortened 1 day for each 2 days the crop is seeded before mid-April. The following are the approximate dates on which four commercial rice varieties will mature if they are seeded about April 15: Belle Patna, July 26; Gulfrose, August 3; Nato, August 8; and Cen-

FEDERAL RESERVE BANK OF DALLAS
DALLAS, TEXAS

tury Patna 231, August 13. Rice harvested by August 10 will require two-thirds to three-fourths of the original time for the second crop to mature.

The earliest maturing rice varieties offer the best chances for consistent maximum total production. Belle Patna would be preferred to Gulfrose, Gulfrose to Nato, and Nato to Century Patna 231. A rice variety in the midseason or late-maturity group offers very little opportunity for a consistently good second crop.

Precise cultural practices are required for satisfactory and economic second-crop rice yields, particularly with the Belle Patna variety. For maximum efficiency, nitrogen fertilizer should be applied immediately after harvesting the first crop. Experiments with Belle Patna and other types of rice indicate that an application of 60 pounds of nitrogen per acre usually will produce the same relative grain yield increase per pound of nitrogen as for the first crop, which ordinarily is 10 to 20 pounds of rough rice for each pound of nitrogen applied. Nitrogen applications may retard the maturity of the second crop if the first crop is harvested after August 10. This delay, combined with the retarding effects of low temperatures, may be a limiting factor to successful production.

Water management is as important for the second crop as it is for the first one. If possible, the field should be dry enough at harvesttime to support heavy machinery. "Rutting" of fields during harvest of the first crop can limit or prohibit an economical second crop. Flushing, or a very light flood, is recommended for fertilizer placement immediately after nitrogen is applied. A shallow flood should be applied about 2 weeks after the first crop is harvested. At this time, the new tillers should be 4 to 6 inches in height. A light flood should be maintained until the field is drained for harvest. If air temperatures below 55° to 60° Fahrenheit are anticipated at any time before the last draining, water depths should be increased to reduce the damage from low temperatures.

Research has shown that consistent second-crop yields of one-third to one-half of the first crop may be obtained, provided nitrogen and water are applied to the stubble and the first crop is harvested by August 10. The rice producer should determine in advance whether 1,000 to 2,000 pounds (approximately 6 to 12 barrels) of rough rice per acre will more than offset the additional costs of fertilizer, water, land rent, and increased harvesting and storage expenses.

Second-crop rice production probably will increase in importance, because the early-maturing Belle Patna variety has reduced much of the risk associated with the time factor. In the event that harvest is delayed by weather and soil conditions, a second-crop variety should be resistant to lodging and capable of withstanding shattering; moreover, yield losses during milling should be minimal.

"From Steer to Steak"

The difference between the price of steak and the price the producer receives for his cattle results from marketing costs, according to a new publication of the Texas Agricultural Extension Service entitled *From Steer to Steak.*

The publication points out that the marketing costs include all the expenses of processing and distribution required to convert the live animal to the salable product. These costs can be divided into three groups: (1) marketing, (2) slaughter-wholesaling, and (3) retailing. The costs involved in the marketing process begin when the animal is sold by the producer. Charges for transporting, selling, and handling of the steer must be included in these expenses.

Slaughtering the animal and wholesaling the carcass is the second phase of marketing. A U. S. Choice grade steer will yield about 59 pounds of carcass beef from every 100 pounds of live weight. Consequently, the value of the by-products and carcass determines the price that can be paid for the live animal, according to the extension service.

Retailing is the final step in marketing beef. Of the 59 pounds of carcass beef, 12 pounds are lost in trimming and cutting the meat for retail sale. This process leaves only 47 pounds of the

original 100 pounds of live animal. Thus, the retail price for the meat must be at least twice the live steer price. Moreover, the costs involved in marketing are not included.

All steer is not steak, and when marketing costs are added, the reason is apparent why the price the consumer pays for steak must be considerably higher than the price the producer obtains for his product, points out the extension service publication.

Narrow-Row Cotton Planting Shows Promise

A new production technique could prove to be a major breakthrough in more efficient cotton production, according to the Texas Agricultural Extension Service. The technique, which has been demonstrated at the Texas Agricultural Experiment Substation at Lubbock, is narrow-row planting of cotton, together with the use of chemicals for weed control.

Cotton was planted in 9-inch rows on land under irrigation, and pre-emergence herbicide was applied for weed control. More than 2 bales of cotton were harvested from the 1-acre plot without a single cultivation. A check plot planted in the usual 40-inch rows produced from 1½ to 1¾ bales per acre. The extension service says that further tests will determine whether narrow-row planting of irrigated cotton can help farmers reduce production costs by increasing yields and eliminating cultivation.

In the narrow-row plots, the herbicide controlled early growth of weeds and the plant shading stopped later growth. A grain drill was used for the narrow-row planting. More than 200,000 plants were grown on an acre, compared with about 30,000 in the 40-inch rows. Each plant produced only three or four bolls, but the dense planting helped to increase the total yield. The closely spaced plants were short, with few branches and thin stems. In addition, they were better adapted to stripper harvesting than are normally spaced plantings.

Both the narrow- and wide-row plots were sprinkler-irrigated three times with 3 inches of water. The water activated the herbicide and aided in seed germination. Both plots received the same fertilizer treatment — 80 pounds of nitrogen and 40 pounds of phosphorus per acre applied before planting. A stripper-harvester was used on both plots.

The report points out that close plantings may not be successful in humid areas of the Cotton Belt where boll rot is a problem. Quality tests currently are being made on the cotton harvested from the narrow-row planting, and results will be announced.

Sweet Corn Hybrid for Texas

Sweetex No. 2 is the first hybrid sweet corn to be developed for Texas growing conditions. According to the Texas Agricultural Experiment Station, which released the variety, it is an attractive roasting ear corn with a good yellow color. Each plant generally produces two uniform ears, which are approximately 7 to 7.5 inches long and have 12 to 14 rows of kernels. The quality of the new sweet corn is good.

Maturing later than most of the sweet corns now grown commercially in Texas, Sweetex No. 2 silks approximately a week later than the Calumet variety. The new type is a high-yielding sweet corn, and a large percentage of the ears are marketable. It has consistently given excellent performance at Weslaco, San Antonio, Temple, and College Station and in the southern cooperative sweet corn trials.

Sweetex No. 2 is highly resistant to Helminthosporium turcicum leaf blight and to damage from the corn earworm. Seed for commercial growers should be available from local seed stores.

New Watermelons Developed

The U. S. Department of Agriculture has developed five new watermelon breeding lines for producing small seedless hybrids and a new standard watermelon variety named Graybelle. Graybelle seed will be commercially available to the public after August 31 this year. How-

ever, the hybrid seed will not be available until next year.

Graybelle is expected to meet the demand for a medium-sized watermelon (about 15 pounds) for the roadside market and supermarket trade. The melon is round-oval, is pale green or gray, and has a hard, moderately thin rind. These melons keep well because of their firm flesh.

Graybelle vines are relatively short and therefore are adapted to close spacing, which contributes to high yields. The new watermelon has resistance to anthracnose and sunburn equal to that of the Charleston Gray variety but lacks resistance to Fusarium wilt. Graybelle ripens relatively early and uniformly.

Improved Band Seeder

An experimental band seeder that assures complete separation of seed and fertilizer during the planting of small grains has been developed cooperatively by the U. S. Department of Agriculture and the Michigan Agricultural Experiment Station.

The seeder differs from present models in that it has a plowshare with a curve or scallop in its cutting edge and the seed tube is mounted 6 to 8 inches behind the fertilizer tube, reports Henry O'Neal, Agricultural Engineer with the Texas Agricultural Extension Service. The share on the experimental seeder makes two distinct furrows instead of one irregularly shaped furrow, such as is made by conventional seeders. On most present models, the seed tube is mounted ahead of the fertilizer tube.

The agricultural engineer says that adjustments on the experimental seeder make possible the application of fertilizer in a concentrated band to the side of and about an inch below the small grain seed. Many commercial seeders mix seed and fertilizer in the furrow instead of placing them in separate rows, as should be done in band seeding.

Seed germination often is delayed or reduced when fertilizer comes in contact with the seed. The position of the seed tube on the new band seeder increases the probability of seed germination, because the seed is sown almost directly under the firming wheel. If the seed tube is several inches ahead of the firming wheel (which is the case on some commercial grain drills), loose soil often covers the seed before the wheel passes over it. The loose soil becomes packed on the seed, and plant emergence often is reduced or delayed.

Analyze Salt-Contaminated Rice Soils

Farmers who plan to seed rice on fields contaminated by salt from Hurricane Carla should have the soils analyzed prior to planting, points out R. J. Miears, Agronomist with the Texas Agricultural Extension Service.

Both soluble salts and a high percentage of exchangeable sodium in the soil can cause damage to rice, and a soil test is the only way to determine the presence of these chemicals. Even if the natural vegetation on the land shows no signs of salt damage, a test should be made because many weeds and grasses are more salt-tolerant than rice.

If high levels of salt are present in the field, the natural flushing from rainwater runoff or the use of irrigation water should help to remove them, says Mr. Miears. If time is short, alternate flooding and draining of the fields should remove damaging soluble salts faster, but this procedure is more expensive. The application of gypsum is recommended for soils that contain high levels of sodium.

Information sheets for salinity analysis are necessary for proper interpretation of the test results and for making recommendations. These forms may be obtained from local county agricultural agents.

Feeding the herd accounts for about one-half the cost of operating a dairy; consequently, the dairyman who plans to reduce costs and increase profits in 1963 should consider producing more of the needed feed, says Curtis Richardson, Area Dairy Specialist with the Texas Agricultural Extension Service. Pasture is the cheapest source of feed for the dairy herd, and temporary pastures are of utmost importance.